

App. No. 09/848,625
Amendment Dated
Reply to Office Action of December 3, 2003

Listing of claims:

Claim 1-6 (Cancelled)

Claim 7 (Presently amended) An apparatus for protecting a circuit from a transient event, comprising:

a signal transfer circuit comprising a transistor having a first non-control terminal that is arranged to receive a supply signal, a control terminal that is coupled to ground, and a second non-control terminal that is arranged to output a first signal during normal operation to a pin of the circuit and to a charge storage circuit, wherein the circuit is powered by the first signal during normal operation, and comprising a second transistor arranged to prevent drain from the charge storage circuit through a body diode of the second transistor.

the charge storage circuit arranged to receive the first signal during normal operation and output a second signal to provide power during the transient event to the pin of the circuit, the charge storage circuit storing enough charge to provide the second signal during the transient event, wherein the circuit is powered by the second signal during the transient event.

Claim 8 (Presently amended) An apparatus for protecting a circuit from a transient event, comprising:

a signal transfer circuit arranged to receive a supply signal and output a first signal that determines the logic state of an input pin of the circuit during normal operation;

a charge storage circuit arranged to receive a bias signal and the first signal, the charge storage circuit providing a second signal that determines the logic state of the input pin of the circuit during the transient event; and

an inverting circuit arranged to receive the first signal, the second signal, and the bias signal, the inverting circuit coupled to the input pin of the circuit, the inverting circuit arranged to hold the input pin of the circuit high during a startup of the circuit, and low during the transient event and during normal operation.

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Claim 9 (Original) The apparatus of Claim 8, wherein the inverting circuit is a Schmidt trigger.

Claim 10. (Original) The apparatus of Claim 8, wherein the charge storage circuit is a capacitor circuit.

Claim 11 (Previously presented) The apparatus of Claim 8, wherein the signal transfer circuit is a diode circuit.

Claim 12 (Previously presented) The apparatus of Claim 8, wherein the signal transfer circuit is a transistor circuit.

Claim 13. (Original) The apparatus of Claim 12, wherein the transistor circuit, further comprises a first transistor and a second transistor arranged to prevent drain from the charge storage circuit.

Claim 14-26 (cancelled).

Claim 27 (Previously amended) An apparatus for protecting a circuit from a transient event, comprising:

a signal transfer circuit arranged to receive a supply signal and output a first signal during normal operation;

a charge storage circuit arranged to receive a bias signal and the first signal, the charge storage circuit providing a second signal that provides determines ~~the~~ logic state of an input pin of the circuit during the transient event; and

an inverting circuit arranged to receive the first signal, the second signal, and the bias signal, the inverting circuit coupled to a pin of the circuit, the inverting circuit arranged to hold the pin of the circuit high during a startup of the circuit, and low during the transient event and during normal operation, wherein the inverting circuit is a Schmidt trigger.

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Claim 28 (Previously presented) The apparatus of Claim 27, wherein the charge storage circuit is a capacitor circuit.

Claim 29 (Previously presented) The apparatus of Claim 27, wherein the signal transfer circuit is a diode circuit.

Claim 30 (Previously presented) The apparatus of Claim 27, wherein the signal transfer circuit is a transistor circuit.

Claim 31 (Previously presented) The apparatus of Claim 30, wherein the transistor circuit, further comprises a first transistor and a second transistor arranged to prevent drain from the charge storage circuit.

Claim 32 (Presently amended) A method for protecting a circuit from a transient event, comprising:

receiving a supply signal and generating in response a first signal that determines the logic state of an input pin of the circuit during normal operation;

charging a charge storage circuit in response to the generated first signal and providing a second signal that determines the logic state of the input pin of the circuit during the transient event; and

generating an output signal for driving the logic state of the input pin in response to the first signal, the second signal, and a bias signal, such that the input pin of the circuit is held high during a startup of the circuit, and held low during the transient event and during normal operation.

Claim 33 (Presently amended) An apparatus for protecting a circuit from a transient event, comprising:

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means for receiving a supply signal and generating in response a first signal that determines the logic state of an input pin of the circuit during normal operation;

means for storing a charge in response to the generated first signal and providing a second signal that determines the logic state of the input pin of the circuit during the transient event; and

means for generating an output signal for driving the logic state of the input pin in response to the first signal, the second signal, and a bias signal, such that the input pin of the circuit is held high during a startup of the circuit, and held low during the transient event and during normal operation.